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APPLICATION NO.	FILING DATE	FIRST-NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,882	08/13/2001	Masaki Katoh	2271/65729	8147

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EXAMINER

CHEN, TIANJIE

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 06/01/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/928,882

Applicant(s)

KATOH ET AL.

Examiner

Tianjie Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Non-Final Rejection (RCE)

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/15/2004 has been entered. Claims 1-4, and 6-13 are pending.

Claim Objections

2. Claims 1 and 8 are objected to because of the following informalities:

In claim 1, line 6 and claim 8, line 7; "Ag_{0.1}In_{0.9}Sb_{0.1}Te_{0.9}" should be changed to --Ag_{0.1}In_{0.9}Sb_{0.1}Te_{0.9}--; respectively.

Appropriate correction is required.

Specification

3. The disclosure is objected to because of the following informalities:

In Specification, p. 6, line 18 and p. 16, line 7; "Ag_{0.1}In_{0.9}Sb_{0.1}Te_{0.9}" should be changed to --Ag_{0.1}In_{0.9}Sb_{0.1}Te_{0.9}--; respectively.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 and 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nogami et al (US 5,276,670) in view of Kinoshita et al (US 5,948,496).

With regard to claim 1, Nogami et al shows a phase-change type optical information recording medium in Fig. 7 including: a transparent substrate 1; a first protective layer 2 on the substrate 1; a recording layer 3 on said first protective layer 2; a second protective layer 4 on said recording layer 3; and a reflective layer 5 on said second protective layer 4, wherein assuming that a minimum recording linear velocity to be V_1 (the third from left circle on curve A in Fig. 9), a maximum recording linear velocity to be V_2 (the rightmost circle on curve A in Fig. 9), and a degree of modulation at the time of reading out information to be $I(V)$, then a value of $I(V_2) / I(V_1)$ is within a range from 1 to 1.2 (Fig. 9; column 9, lines 45-56).

With regard to claim 8, Nogami et al shows a phase-change type optical information recording medium as described above including at least one recording layer which records information based on crystalline-to-crystalline or crystalline-to-amorphous transition, said phase-change type optical information recording medium being rotated around a center of rotation when recording information in or reading information from said recording layer, wherein when the minimum and maximum linear velocities of rotation are respectively V_1 and V_2 , then a value of a degree of modulation corresponding to the maximum linear velocity $I(V_2)$ divided by a degree of modulation corresponding to the maximum linear velocity $I(V_1)$ is between 1 and 1.2.

With regard to claims 2 and 9, Nogami et al further shows a ratio between the maximum recording linear velocity V_2 and the minimum recording linear velocity V_1 is: $V_2/V_1 \geq 2.5$.

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With regard to claims 3 and 10, Nogami et al further shows that the minimum recording linear velocity V1 is 4.8 m/s or more.

With regard to claims 4 and 11, Nogami et al further shows that the maximum recording linear velocity V2 is 12.0 m/s or more.

Nogami does not show that the recording layer includes as a main component $\text{Ag}_\alpha\text{In}_\beta\text{Sb}_\gamma\text{Te}_\delta$, where α , β , γ , and δ represent atomic percents and satisfy the relation:

$$0.1 \leq \alpha \leq 2.0,$$

$$3.0 \leq \beta \leq 8.0,$$

$$65.0 \leq \gamma \leq 75.0,$$

$$15.0 \leq \delta \leq 30.0, \text{ and}$$

$$97 \leq \alpha + \beta + \gamma + \delta \leq 100.$$

Kinoshita et al shows a phase-change type optical information recording medium, which includes as a main component $\text{Ag}_\alpha\text{In}_\beta\text{Sb}_\gamma\text{Te}_\delta$, where α , β , γ , and δ represent atomic percents with $\alpha = 5$, $\beta = 5$, $\gamma = 62$, and $\delta = 28$ (Column 11, lines 52-53); which are close to the relation:

$$0.1 \leq \alpha \leq 2.0,$$

$$3.0 \leq \beta \leq 8.0,$$

$$65.0 \leq \gamma \leq 75.0,$$

$$15.0 \leq \delta \leq 30.0, \text{ and}$$

$$97 \leq \alpha + \beta + \gamma + \delta \leq 100.$$

It would have been obvious at the time the invention was made to one of ordinary skill in the art to use AgInSbTe as recording layer in Nogami et al's device as taught by Kinoshita et al with the recited percentage relation. The rationale is as follows: Kinoshita et al teaches that AgInSbTe has a feature in which it is highly

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sensitive and the contour of an amorphous portion is definite (Column 1, lines 34-37). One of ordinary skill in the art would have been motivated to use AgInSbTe taught by Kinoshita et al into Nogami et al's device in order to obtain high sensitivity and well-defined contour. Applicant does not disclose unexpected results for the percentage cited in claims 1 and 8. Kinoshita et al shows the percentage relation of AgInSbTe, which can be varied (Column 6, lines 39-41 and column 11, lines 50-53). The ratio disclosed in column 11, lines 52-53 is very close to the ratio recited in claims 1 and 8. It is reasonably expected that one of ordinary skill in the art would have been motivated to determine the ration through experimentation and optimization, which would include the ratio recited in claims 1 and 8.

With regard to claims 6 and 12, Kinoshita et al shows that AgInSbTe contains nitrogen (Column 5, lines 6-8).

With regard to claims 7 and 13, Kinoshita et al further shows that the thickness of the recording layer is 17 nm, which falls in a range from 13 nm to 23 nm (Column 8, lines 3-4).

Response to Arguments

5. Applicant's arguments with respect to claims 1 and 8 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is (703) 305-7499. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chen Tye 05/23/04
TIANJIE CHEN
PRIMARY EXAMINER